

ROCK is the hard, solid part of the earth's crust. In many areas, the rock is covered by a layer of soil in which plants or trees may grow. Soil itself is made up of tiny bits of rocks usually mixed with organic materials from plants and animals. Rock also lies beneath the oceans and under the polar icecaps.

Where highways cut through hills, you can often see layers of rock in the exposed hillsides. When the rock is removed to make way for the highway, construction men often break it up and use the pieces to build up the road's foundation.

Rivers frequently cut deep channels through the rock. Great cliffs of rock line many seashores, such as Maine and Norway. In desert regions, rock cliffs and pinnacles may rise high above sandy plains.

Most rocks are *aggregates*, or combinations, of one or more minerals. Basalt, for example, contains crystals of the minerals plagioclase and pyroxene. Some rocks appear to be dense and massive, and have no mineral grains. But if you examine a very thin slice of such rock under a microscope, you can see grains of minerals.

Rocks and minerals are useful to us in many ways. Builders use granite, marble, and other rocks in construction work. Cement made from limestone and other rocks binds crushed stone into strong, long-lasting concrete for buildings, dams, and highways.



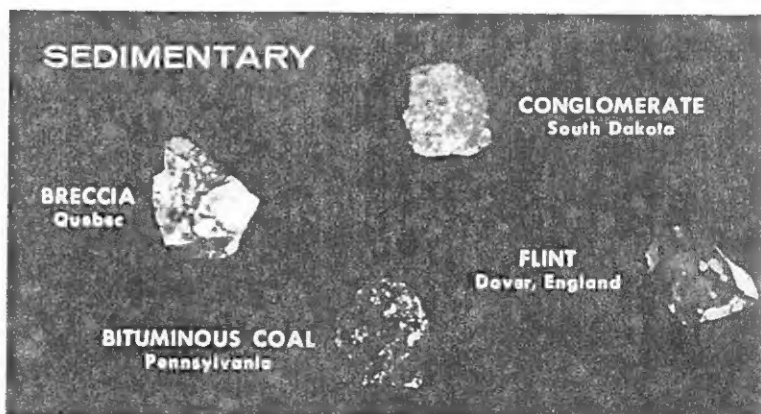
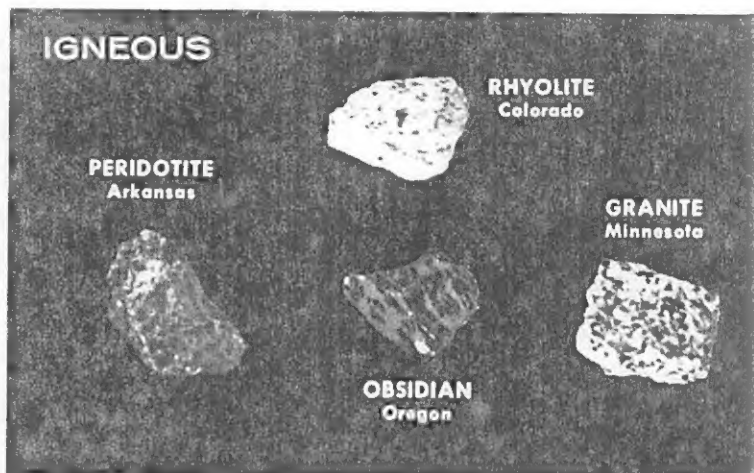
Hogan Smith

"Rock Hounds" Hunt for Rocks to add to their collection. These hobbyists are chipping small samples from some large boulders they found.



WORLD BOOK photo

Sorting and Classifying Rocks is an important part of rock collecting. Rock samples should be numbered and cataloged to make it easier to identify and locate them.



Metals such as aluminum, iron, lead, and tin come from rocks that we call *ores*. Ores also supply such radioactive elements as radium and uranium. Ore deposits may lie close to the earth's surface, or deep underground. In some regions, deposits of iron or copper ores make up entire mountains.

Some rocks contain valuable nonmetallic minerals such as borax and graphite. Asbestos rock has a fibrous mineral that we use to insulate our homes. All gems, except amber, coral, and pearl, come from rocks. Diamonds mined in Africa and Arkansas come from a rock called *peridotite*. Emeralds are found in black limestone in Colombia.

Geologists trace the history of the earth by studying rocks (see GEOLOGY). They find oil deposits by studying

different rock layers. Other scientists study *fossils* (remains of plants and animals found in rock) to learn about the kind of life that existed millions of years ago (see FOSSIL).

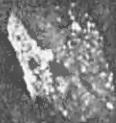
Thousands of young people and adults enjoy collecting rocks and minerals as a hobby. The hobbyists call themselves "rock hounds." They trade rocks and minerals just as stamp collectors trade stamps. A collector in Los Angeles may trade with fellow hobbyists in his local rock and mineral club, or with other collectors as far away as New York City, Montreal, or Vienna. There are about a thousand rock and mineral clubs in the United States and Canada. These clubs hold regular meetings, sponsor study groups and exhibits, and organize field trips to collecting areas. Sometimes they

GABBRO
New York



PUMICE
Utah

BASALT
Michigan



COMMON ROCKS IGNEOUS ROCKS

ROCK	COLOR	STRUCTURE
Basalt	Dark, greenish-gray to black.	Dense, microscopic crystals, often form columns.
Gabbro	Greenish-gray to black.	Coarse crystals.
Granite	White to gray, pink to red.	Tightly arranged medium-to-coarse crystals.
Obsidian	Black, sometimes with brown streaks.	Glassy, no crystals, breaks with a shell-like fracture.
Peridotite	Greenish-gray.	Large, pipelike formations.
Pumice	Grayish-white.	Light, glassy, frothy, fine pores, floats on water.
Rhyolite	Gray to pink.	Dense, sometimes contains small crystals.
Scoria	Reddish-brown to black.	Large pores, looks like furnace slag.
Syenite	Gray to pink and red.	Coarse crystals, resembles granite but has no quartz.



DOLOMITIC MARBLE
Massachusetts



PINK MARBLE
Georgia

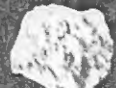
METAMORPHIC ROCKS

Gneiss	Gray and pink to black and red.	Medium to coarse crystals arranged in bands.
Marble	Many colors, often mixed.	Medium to coarse crystals, may be banded.
Quartzite	White, gray, pink, buff.	Massive, hard, often glassy.
Schist	White, gray, red, green, black.	Flaky particles, finely banded, feels slippery, often sparkles with mica.
Slate	Black, red, green, purple.	Fine grains, dense, splits into thin, smooth slabs.

SANDSTONE
New York



LIMESTONE
Florida



SEDIMENTARY ROCKS

Breccia	Gray to black, tan to red.	Angular pieces of rock, held together by natural cement.
Clay	White, red, black, brown.	Fine particles, dusty when dry, muddy and sticky when wet.
Coal	Shiny to dull black.	Brittle, in seams or layers.
Conglomerate	Many colors.	Rounded pebbles or stones held together by natural cement.
Flint	Dark gray to buff.	Hard, breaks with a sharp edge.
Limestone	White, gray, and buff to black and red.	Forms thick beds and cliffs. May contain fossils.
Sandstone	White, gray, yellow, red.	Fine or coarse grains cemented together in beds.
Shale	Yellow, red, gray, green, black.	Dense, fine particles, soft, splits easily, smells like clay.